

Organization Design Working Draft

1.0 Purpose Statement

The purpose of this paper is to provide estimates of the required resources to administer Grid West. These estimates are intended to be representative of the resource level required for the ongoing administration of the basic feature operations of Grid West. Roles are summarized into several primary categories:

- *Executives:* top management
- *Senior Directors:* division leads
- *Managers:* department leads
- *Technical Specialists:* Career-level engineers and subject matter experts
- *Analysts.*

These roles will have a range of experience levels, but have been broadly categorized for simplicity. It is anticipated that Grid West will operate with three facilities: a corporate office, a primary operations center and a back-up facility. The proposed office location for each resource is also identified. It is assumed that a corporate office will be leased. For the purposes of the cost estimate only, specific locations were assumed for operations centers; the details of actual locations will be determined during later design phases. It is assumed that Bonneville Power Administration's (BPA) Dittmer operations center in Vancouver, WA, will be leveraged as the primary operations center. The requirements for Dittmer are being determined separately. It is also assumed that the back-up facility will leverage an existing Sierra Pacific site in Reno, NV. The back-up site will house some ongoing Market and Grid Operations functions and employees. The primary operations and back-up center leases will include all ongoing costs.

2.0 Proposed Divisions and Departments

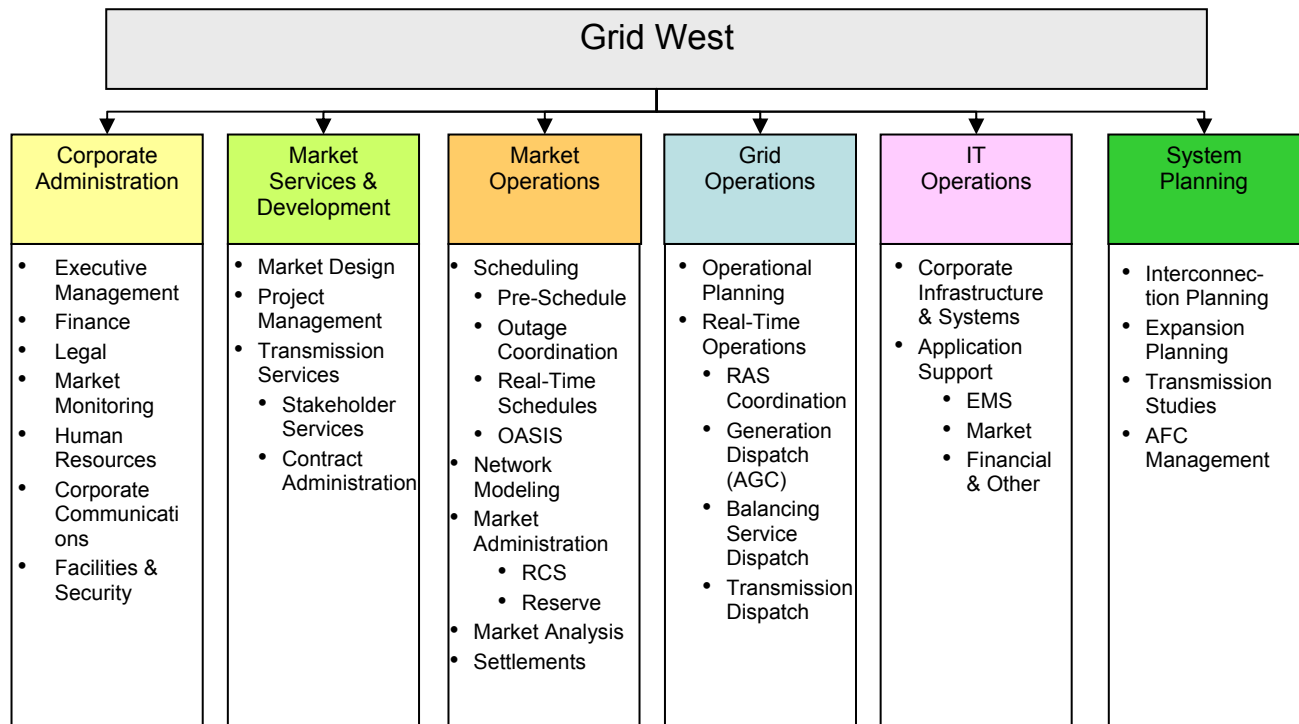
To administer the centralized functions, the proposed divisions are:

- Corporate Administration;
- Market Services and Development;
- Market Operations;
- Grid Operations;
- IT Operations; and
- Systems Planning.

Each division and the departments within it are discussed in the following sections. A representation of these divisions is shown below in Figure 2.1. Figure 2.1 is intended to represent the different responsibilities. A hierarchical organization chart with titles and management structure will need to be developed for implementation.

Organization Design Working Draft

Figure 2.1: Proposed Grid West Divisions



2.1 Corporate Administration

Corporate administration includes general management functions, such as Executive Management, Finance, Legal, Market Monitoring, Human Resources, Corporate Communications and Facilities. The corporate administration functions give direction and support to the other groups. Outsourcing options may be explored for some of these functions, such as part of the Human Resources functions (e.g. payroll and benefits administration), market monitoring or facilities management.

2.1.1 Executive Management

The executive management will be responsible for overall program operation and direction, including establishing program guidelines, policies and performance metrics. The executive management ensures that the entire organization is acting in accordance with established guidelines. It is assumed that a flat organization is desired, but that adequate controls are in place. Expected positions include:

- Chief Executive Officer (CEO)
- Chief Operating Officer (COO)
- Chief Financial Officer (CFO)

Organization Design Working Draft

- Chief Information Technology Officer (CIO)

The CEO will direct all aspects of Grid West's policies, objectives and initiatives.

The COO will direct all operational aspects of Grid West and will be responsible for attaining operational goals.

The CFO will be responsible for Grid West's financial policies and functions, such as accounting, budget, credit, tax and treasury.

The CIO directs the goals and policies for the information technology group, including IT planning. The IT group is typically the largest division within other ISOs and RTOs.

For this purpose, it is assumed that senior directors (or potentially Vice Presidents) will lead Market Services and Development, Market Operations and Grid Operations.

Role	Location	Count
CEO	Corporate Office	1
COO	Corporate Office	1
CFO	Corporate Office	1
CIO	Corporate Office	1
Senior Director	Corporate Office/Primary Site	3
Business Manager	Corporate Office	1
Executive Assistant	Corporate Office	1
Total	Corporate Office	9 (including support)

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO ¹	7	CEO with 6 direct reports, including General Counsel, based on their organization chart, not including support roles.
ERCOT ²	9	9 FTEs in their Executive group, including General Counsel, an Internal Audit Manager and an executive assistant
NYISO ³	3	3 FTEs classified as Executives, but it is likely that the division leads are counted in the division; 19 in Admin & Compliance
PJM ⁴	24	24 total in their Office of the President, based on the proposed 2005 annual budget. This likely includes support roles.

¹ California ISO FY2001 Budget Cost Allocation Matrix.

² 2004 Fee Case, Work Paper 25 Position Control Listing October 2003 and Work Paper 9: Staffing Summary by Division and Department

³ 2004 Budget Overview presentation to the Budget, Standards & Performance Subcommittee on September 26, 2003



Organization Design Working Draft

GridFlorida ⁵	6	Office of the President
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The headcount drivers for this group are:

- Overall size of the organization
- Diversity of functions to be managed

The opportunities for cost savings include a flat organizational design, but sufficient management is required to ensure efficient direction.

2.1.2 Finance

The Finance department will manage:

- Financial reporting,
- Accounting,
- Budget,
- Tax, and
- Treasury functions.

Finance will be managed by the CFO and will have a Controller and Treasurer role, along with career level specialists and analysts. Responsibilities include:

- Accounting,
- Audit coordination
- Accounts payable,
- Accounts receivable,
- Treasury and cash management,
- Debt management,
- Credit,
- Procurement,
- Payroll,
- Budget, and
- Financial reporting.

Role	Location	Count
Controller	Corporate Office	1
Treasurer	Corporate Office	1
Accounting Manager	Corporate Office	1

⁴ Staff Report on Cost Ranges for the Development and Operation of a Day One Regional Transmission Organization, Docket No. PL04-16-000, prepared by the Staff of the Federal Energy Regulatory Commission, October 2004

⁵ Estimate of GridFlorida Capital and Annual Operating Costs for Day 1 and Day 2 Operations, Prepared by IF Consulting, April 20, 2005

Organization Design Working Draft

Analyst	Corporate Office	7
Total	Corporate Office	11

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	17 ⁶	10 Controller, 7 Treasury
ERCOT	17	Includes 1 contract coordinator
NYISO	28	28 FTEs; includes market settlement group
PJM	25	Based on proposed 2005 Annual Budget in FERC report
MISO	22	Includes 4 in credit and CFO

The headcount drivers for this group are:

- Size of overall operations that impact budget, treasury and financial reporting
- Market structure and its credit requirements
- Amount of procurement, A/R, A/P, vendors
- Number of employees on payroll

The opportunities for cost savings are:

- Bilateral market without the credit responsibilities that other RTOs and ISOs have as a result of their market structure (e.g. day-ahead with financial rights)
- Smaller organization

2.1.3 Legal

The Legal department will meet regulatory, contracting and other general counsel needs. The department director or chief counsel may report to the CEO. The Legal department will have regulatory counsel that will assist with regulatory filing with the Federal Energy Regulatory Commission (FERC). As a result, the Legal department will be responsible for regulatory compliance. In addition to Regulatory Counsel, Grid West will require general counsel for corporate governance, legal administration, contracts, vendor agreements, detailed statements of work and such. It is assumed that one litigation attorney will be required for investigations, regulatory litigation, negotiations, and such. It is assumed that there will not be the need for a legislative attorney (e.g. no state public utility commission). It is also assumed that there will not be substantial legal work for human resources issues.

The number of control areas within Grid West will require legal support. For comparison purposes, ERCOT has nine employees in their Legal group, five of which are corporate counsel and four of which are support. ERCOT, however, is one control area with 2 DC

⁶ Proposed FY2005 Budget Final Presentation

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ties. A regulatory specialist and regulatory analysts will attend meetings and follow regulatory changes. Additional analyst roles include paralegal and legal secretary support.

Compliance will oversee the enforcement of tariff provisions and will require report preparation, data analysis and tracking to apply protocols, guidelines and regulatory standards. It is assumed there will be honesty in the market with strict consequences for questionable activity. It is assumed compliance will conduct market spot checking. Internal audit will conduct audits of areas that are deemed to pose significant risk. Internal audit will develop recommendations for policies, procedures and operations; communicate results to management; and track findings.

Role	Location	Count
Regulatory Counsel	Corporate Office	4
General Counsel	Corporate Office	4
Litigation	Corporate Office	1
Compliance	Corporate Office	4
Internal Audit Manager	Corporate Office	1
Specialist	Corporate Office	1
Analyst	Corporate Office	4
Total	Corporate Office	19

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	37	Legal, regulatory and compliance
ERCOT	17	5 counsel, 4 legal support and 2 general counsel for TX Nodal Capital Project; 5 NERC Compliance, 1 internal audit manager
NYISO	15	14 FTEs and 1 contractor in Legal and Regulatory; 23 in Admin & Compliance
PJM	?	100 in Corporate Services
GridFlorida	14	11 Day 1 + 3 Day 2

The headcount drivers for this group are:

- Overall size of the organization
- Number of control areas within the region
- Number of adjacent markets or control areas
- Contract requirements and number of contracts
- Regulatory and FERC requirements
- Number of market and regulatory changes
- Multiple state liaison

Organization Design Working Draft

The opportunities for cost savings are:

- Strong cooperation between Grid West control areas to minimize contract administration
- Controlled change in market
- Clear rules and fewer markets
- Transmission Operators (TOs) will oversee compliance issues (e.g. meter data quality)

2.1.4 Market Monitoring

The Market Monitoring department will be responsible for examining the efficiency and integrity of the market, as well as reporting the results. Market monitoring will work to identify inequities and potential market gaming. Market monitoring is one area that can be considered for outsourcing to an independent monitor. Other Regional Transmission Organizations (RTO) and Independent System Operators (ISO) have various arrangements ranging from completely internal (e.g. CAISO) to a combination of internal resources with an independent advisor (NY-ISO or NE-ISO) to a completely independent monitor (MISO). It is assumed that Grid West market monitoring will be largely outsourced with two internal representatives responsible to oversee the data and to act as a liaison with the outside services and with the Grid West management. For comparison, CAISO has approximately twelve dedicated resources to market monitoring. The authority, mitigation and information guidelines will need to be defined further.

Role	Location	Count
Specialist	Corporate Office	1
Analyst	Corporate Office	1
Total	Corporate Office	2

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	16	Market Surveillance (report through Legal);
ERCOT	4	4 in Transparency & Reporting in Market Services?
NYISO	~30	Part of 44 total in Risk Management
ISO-NE	~13	Estimate
PJM	17	17 in Market Monitoring

The headcount drivers for this group are:

- Structure and complexity of markets
- Number of markets to be monitored

Organization Design Working Draft

The opportunities for cost savings are:

- Bilateral energy market
- Less complexity in the market
- Fewer markets

2.1.5 Human Resources

The functions performed by the Human Resources group may be met entirely in house or with some portion of it outsourced (e.g. payroll and benefits administration). For this purpose, it is assumed that most functions will be met in house, but with outsourcing of payroll (e.g. ADP) and benefits administration. Department responsibilities include:

- Benefits information and compensation administration,
- Employee relations
- Staffing and recruiting,
- Training and orientation,
- Familiarity with standard practices and procedures

Role	Location	Count
Manager	Corporate Office	1
Analyst	Corporate Office	5
Total	Corporate Office	6

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	12	
ERCOT	5	
NYISO	16	HR and training
PJM		100 in Corporate Services
GridFlorida		26 Corporate Services Day 1 + 4 Day 2

The headcount drivers for this group are:

- Number of employees within the organization
- Extent of outsourcing
- 1 human resources employee for every 50 employees is a typical industry standard

The opportunities for cost savings are:

- Smaller organization will require fewer human resources employees
- Outsourcing payroll and benefits administration

Organization Design Working Draft

2.1.6 Corporate Communications

Corporate Communications will coordinate Grid West communications, such as distributing news releases and fact sheets. Corporate Communications will maintain communication policies and procedures. The analyst roles will be responsible for web content, internal communications and external communications.

Role	Location	Count
Specialist	Corporate Office	2
Total	Corporate Office	2

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	4	Within Strategic Development & Communications, 7.5 total in the group with 3.5 FT in general Strategic Development & Communications
ERCOT	3	
NYISO	6	
PJM		100 in Corporate Services
MISO	2	
GridFlorida		26 Corporate Services Day 1 + 4 Day 2

The headcount drivers for this group are:

- Overall size of the organization
- Number of changes to be implemented requiring communication
- Overall activity
- Web content

The opportunities for cost savings are:

- Smaller organization
- Few market changes
- Controlled rollout of change
- Streamlined web content

2.1.7 Facilities and Security

This group will manage facilities, security and safety.

Facilities will oversee the maintenance of the Grid West buildings and grounds, including all building systems, furnishings fire safety, HVAC and such. Facilities will also oversee physical upgrades such as changes in floor plan and work station set up. This role will require some negotiation and oversight of outside services.

Organization Design Working Draft

Security will manage the safely and physical protection of all Grid West personnel and facilities. Security will entail emergency preparedness and crisis management.

Safety includes the responsibility for ergonomics, workers compensation issues and compliance with safety regulations.

It is assumed that this group will largely oversee contacts for various services for facilities and security management. Resources will be dedicated to the Corporate Office. It is assumed that these functions will be part of the lease for the Primary Operations Center at Dittmer and for the Backup facility in Reno.

Role	Location	Count
Manager	Corporate Office	1
Analyst	Corporate Office	1
Total	Corporate Office	2

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	17	Through CFO
ERCOT	6	Housed within Technology Services Division (CIO report)
NYISO		Part of IT (131 FTEs and 17 contractors for 148 total in IT)
PJM		100 in Corporate Services
GridFlorida		26 Corporate Services Day 1 + 4 Day 2; Security IT or other?

The headcount drivers for this group are:

- Number of buildings and sites
- Number of employees
- Number of contractors for services
- Outsourced roles (e.g. security)

The opportunities for cost savings are:

- One primary location and one backup location
- Smaller organization
- Streamlined service contracts
- Services to be leveraged for BPA Dittmer and Reno back-up sites

2.2 Market Services and Development

Organization Design Working Draft

Grid West operations will require participation in ongoing regulatory proceedings to provide guidance on changes to the necessary forums and to brief to Grid West management. Compliance or other regulatory reporting may be required.

2.2.1 Market Design

The Market Design department will consist of specialists and data analysts in market engineering and business solutions. A manager will oversee the group. The group will be responsible for examining the efficiency and integrity of the market, as well as reporting the results. Market design will work toward improving the market and providing strategic direction. Analysts within market design will provide technical expertise to ensure software business rules comply with tariff and regulatory requirements.

Role	Location	Count
Manager	Corporate Office	1
Specialist	Corporate Office	6
Analyst	Corporate Office	6
Total	Corporate Office	13

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	15	4 in Market Planning; 11 Market Support & Development [responsibilities?]
ERCOT	4	4 Wholesale Market Development Analysts
NYISO	6-10	Estimate based on ISO knowledge
GridFlorida	14	Day 2 Market Design & Mature Market Functions

The headcount drivers for this group are:

- Structure of markets for market design
- Number and complexity of markets

The opportunities for cost savings are:

- Bilateral energy market
- Controlled change and rollout

2.2.2 Project Management

The Project Management Office (PMO) will serve the entire organization. The PMO will manage initiatives implementing new changes, such as a change in the market rules that requires outside consulting services, system updates and training for the basic features of Grid West. The PMO will act as a special project team for multiple projects of limited terms. The PMO will oversee the functions that follow. It is assumed that consultants will help

Organization Design Working Draft

during peak times and provide subject matter expertise. Ongoing routine responsibilities will be met by internal resources.

- **Vendor Management:** Negotiation, contract oversight and milestone tracking
- **Business Process Management:** Implementation of new processes across functional groups and systems
- **Change Management:** Smooth transition, training and knowledge transfer upon implementation of changes

The PMO will be charged with keeping projects on time and on budget while meeting the needs of Grid West. The PMO will focus on automation and process improvement projects; and will manage and prioritize multiple projects. The PMO may require incremental growth for market enhancement phases.

Role	Location	Count
Manager	Corporate Office	1
Specialist	Corporate Office	5
Total	Corporate Office	6

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	11	5 in Project Office, 6 in IT Assets, Contracts & Change Management, more in other groups? Contractors?
ERCOT	18	1 Director of Project Management, 7 Project Managers in CIO group; 10 Business Project Managers in CMO group
NYISO		Part of 23 Admin & Compliance [Part of 142 within IT?]
PJM		[Part of 169 within IT?]
GridFlorida		Part of IT or Market Design & Mature Market Functions?

The headcount drivers for this group are:

- Number and complexity of ongoing projects
- Extent of external support on projects
- Use of external consulting resources with internal oversight assumed for projects of limited duration
- Extent of automation

The opportunities for cost savings are:

- Minimize market enhancement or redesign
- Controlled change and rollout

Organization Design Working Draft

2.2.3 Transmission Services

While all Grid West groups will need to work together to ensure quality customer service, the Transmission Services department will have the primary responsibility to interface with the customer. The functions within Transmission Services follow.

- **Stakeholder Services:** Customer service, training, outreach and registration for market participants
- **Contract Administration:** New and existing customer agreement implementation, contractual questions

Stakeholder Services will be responsible as the first point of contact for customers needing assistance on any matter with Grid West. As a result, stakeholder services will need to be familiar with all aspects of the market and work closely with all groups within Grid West to ensure seamless customer service. Stakeholder services will be responsible for all training and outreach efforts. The outreach efforts will need to be assessed periodically and adjusted as necessary. The group will also oversee registration for market participants and certification of authorized products. The specialist roles include training development, customer registration, customer service and planning support. The analyst roles include training coordination, tariff administration support, and market rules analysis. Each customer service representative will be responsible for designated customers and an assigned area of expertise so that the team will have strong coverage.

Role	Location	Count
Stakeholder Service Manager	Corporate Office	1
Specialist	Corporate Office	4
Analyst	Corporate Office	5
Total	Corporate Office	10

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	17	Client Relations
ERCOT	27	8 in Market Rules, 4 stakeholder services in Corporate Admin; 15 in wholesale client services
NYISO	17	Based on ISO knowledge
PJM		
GridFlorida	26	14 Member Service Day 1 + 12 Day 2

The headcount drivers for this group are:

- Number of customers

Organization Design Working Draft

- Structure and complexity of the market
- Frequency of market changes
- Responsibilities and authority of representatives

The opportunities for cost savings are:

- Customer service coordination with each department
- Ownership of results and dispute resolutions
- Fewer market products and services
- Fewer market changes

Contract Administration will develop and implement agreements with new customer; oversee and amend contracts with existing customers and provide support to other groups on questions on contract application. The administration will be provided by a range of experience levels, but are listed as specialists below.

Role	Location	Count
Manager	Corporate Office	1
Specialist	Corporate Office	8
Total	Corporate Office	9

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	9	Contracts and Special Projects
ERCOT	~3	Within Legal
NYISO		
PJM		
GridFlorida		Part of 14 Member Service Day 1 + 12 Day 2?

The headcount drivers for this group are:

- Number of customers
- Structure and complexity of the market
- Frequency of market changes
- Labor intensive activity

The opportunities for cost savings are:

- Fewer market products and services (e.g. no Reliability Must Run)
- Fewer market changes

2.3 Market Operations

Organization Design Working Draft

Market Operations will oversee the administration of the markets, both for the CCA and the Grid West regional services. Market Operations will administer the market from accepting bid and offers, clearing the market and settling the market. Market Operations will also be responsible for tariff billing as part of the settlements function.

2.3.1 Scheduling

The Scheduling department will oversee schedule operation, including day-ahead scheduling and post day-ahead scheduling adjustment request processing. The scheduling coordinators will take care of pre-scheduling responsibilities and after the fact accounting responsibilities. The group will calculate AFC and post results. The group will administer curtailments if infeasibilities are found in the submitted schedules. The group will also oversee the e-tagging, interchange and checkout processes. The scheduling group will also support the OASIS Market Information System (MIS) in coordination with dedicated IT support. The scheduling group will also develop loss factors and calculate loss obligations. The asterisks indicate the 7/24 shift roles.

Role	Location	Count
Manager	BPA Dittmer	1
Manager	Back-up	1
Scheduling Coordinator	BPA Dittmer	5
Scheduling Coordinator	Back-up	2
Outage Coordinator	BPA Dittmer	2
Outage Coordinator	Back-up	1
Real-Time Schedulers	BPA Dittmer	12*
Real-Time Schedulers	Back-up	6*
OASIS Coordinator	BPA Dittmer	1
Total	BPA Dittmer	31

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	46	Scheduling & Outage Coordination (20 RT, 12 Outage Coord, 8 pre-sched, 4 after the fact accounting, 2 admin)
ERCOT		Part of 54 in System Operations? 6 in Outage Coordination
NYISO		Part of 82 total in Operations
PJM		Part of 148 total in Systems Operations?
GridFlorida		In Control Center Ops? 51 Day 1 + 35 Day 2

The headcount drivers for this group are:

- Number of market participants
- Number of schedules for verification
- Extent of scheduling adjustments

Organization Design Working Draft

- Number of required curtailments
- Number of interchange schedules and ties
- Number of unusual considerations for existing contracts
- Checkout process and resolution
- OASIS/MIS support
- Voltage level and MW thresholds
- Number of days for pre-scheduling (e.g. 5 or 7 days per week)

The opportunities for cost savings are:

- Well defined curtailment process
- Higher voltage levels and thresholds
- Minimized need for generation outage review and investigation

2.3.2 Markets

The Markets department will administer the Reconfiguration Service (RCS) auctions. This group will also administer the Reserve Market on behalf of the CCA. The dispatch of Real Time Balancing Energy Service will be administered through Grid Operations. The Markets department will have:

- **Transmission Rights Administration:** Annual, Monthly, Intra-monthly and Daily RCS auctions; Injection/Withdrawal Rights (IWR) validation, bilateral IWR registration, Available Flowgate Capacities (AFC) calculations.
- **Reserve Market Administration:** Regulation, Spinning, and Non-Spinning markets⁷.

The specialist roles are market administrators. Analysts support each function.

Role	Location	Count
Manager	Corporate Office	1
Specialist	BPA Dittmer	4
Analyst	BPA Dittmer	4
Total	Corporate Office	9

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	19	19 of 43 total toward market administration
ERCOT	17	17 in Market Operations Support
NYISO		Part of 49 (48 FTE + 1 contractor) in Market Services

⁷ See White Paper on Reserve Market.

Organization Design Working Draft

PJM		72 in Market Services
GridFlorida	26	In Commercial Operations? 5 Day 1 + 25 Day 2

The headcount drivers for this group are:

- Number of markets
- Market complexity
- Granularity
- Automation

The opportunities for cost savings are:

- Wholesale, bilateral market
- Reduced complexity
- Controlled change and rollout

2.3.3 Network Modeling

The Network Modeling department will manage the SE/Commercial model and topology. The Network Modeling group will be responsible for updating and maintaining the electric power system model used by the scheduling and dispatch software; and other analysis functions.

Role	Location	Count
Manager	BPA Dittmer	1
Specialist	BPA Dittmer	1
Analyst	BPA Dittmer	2
Total	BPA Dittmer	4

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	4	In Market Ops
ERCOT	8	
NYISO		
PJM		Part of 148 total in Systems Operations?
GridFlorida	26	In Commercial Operations? 5 Day 1 + 25 Day 2

The headcount drivers for this group are:

- Complexity of network model
- Voltage level and thresholds
- Market scope and complexity

Organization Design Working Draft

- Speed of change

The opportunities for cost savings are:

- Existing Transmission Operators responsibility
- Higher voltage levels and thresholds
- Controlled market change and rollout

2.3.4 Market Analysis

The Market Analysis department will examine the market data, such as market clearing prices, to ensure reasonable results. The Market Analysis will also summarize aggregate market data, such as market totals, bid quantities and such.

Role	Location	Count
Manager	Corporate Office	1
Analyst	Corporate Office	2
Total	Corporate Office	3

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	18	Market Quality group, covers additional functions covered elsewhere in Grid West
ERCOT		
NYISO		
PJM		

The headcount drivers for this group are:

- Amount of data for routine review
- Number of data issues that arise
- Number of systems and manual processes
- Number of catch-all projects

The opportunities for cost savings are:

- Fewer market products (e.g. fewer prices)
- Less complex market structure
- Adequate applications and application support
- Controlled change and rollout
- Minimum dollar thresholds
- Adequate dispute resolution expertise in other groups

Organization Design Working Draft

2.3.5 Market Settlements

Market Settlements is typically a large group within other ISOs and RTOs. The Market Settlements department will calculate the costs and credits associated with each charge type for each participant based on schedules, market data and submitted meter data. The Market Settlements department will issue a preliminary statement and a final statement. The group will oversee the dispute process and work with the customers to resolve any settlement disputes. Specialist will be dedicated to the dispute process. The settlement group will manage meter data and track the balancing account for rounding errors associated with loss factors if needed. The group will also administer transmission use and access fees. The group will execute batch processing. The group will work with the IT Application Support department to trouble shoot any problems that may arise in the settlement calculations.

Role	Location	Count
Manager	Corporate Office	1
Specialist	Corporate Office	6
Analyst	Corporate Office	8
Total	Corporate Office	15

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	31	Settlements and billing; preliminary settlement, final settlement
ERCOT	28	18 in Settlement and Billing, 10 in Settlement Metering (not including 15 in Energy Analysis and Aggregation)
NYISO	10-14	Part of 28 within Finance
PJM		Part of 72 in Market Services?
GridFlorida	21	9 Day 1 + 12 incremental for Day 2

The headcount drivers for this group are:

- Number of market participants
- Structure and complexity of the market
- Number of charge types
- Granularity
- Automation
- Manual workarounds and processes
- Typical dollar amounts of settlement and relative number of disputes filed
- Complexity in researching disputes
- Speed of change

Organization Design Working Draft

The opportunities for cost savings are:

- Adequate systems and application support
- Tools for dispute research and management
- Less market complexity and fewer products settled
- Controlled change and rollout
- No Reliability Must Run

2.4 Grid Operations

Within other ISOs and RTOs, the system or grid operations groups are typically the second largest behind IT with respect to headcount.

2.4.1 Operational Planning

Operation Planning will oversee shorter term planning efforts (e.g. daily, next season). Operational Planning will include reliability assessment and operational engineering. Operational Planning will develop reliability criteria for outage evaluation, manage the notification process for generation and transmission outage requests, evaluate the feasibility, developing alternatives if needed, and maintain records on planned and forced outages. It is assumed that TOs will have the responsibility to meet maintenance standards. The Northwest Power Pool seasonal reports will be continued by the Pacific Northwest Security Coordinator (PNSC). In addition, Regional Coordination needs will be met without Grid West headcount.

Role	Location	Count
Manager	BPA Dittmer	1
Engineer	BPA Dittmer	8
Engineer	Back-up	3
Total	BPA Dittmer	12

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	34	Engineering & Maintenance
ERCOT	13	9 in Operations Planning & Analysis, 4 in Operations Support Engineering
NYISO		
PJM		
GridFlorida	49	In Planning and Engineering? 25 Day 1 + 24 Day 2

Organization Design Working Draft

The headcount drivers for this group are:

- Number of market participants
- Extent of planning requirements (e.g. current state)
- Voltage level and thresholds

The opportunities for cost savings are:

- Well defined processes
- TOs maintaining responsibilities (e.g. maintenance standards)
- Reduced short term resource adequacy assessments

2.4.2 Real-Time Operations

Real Time Operations will manage the grid, dispatch generation, and oversee real-time schedules. The group will ensure reliable and safe operation. This group will operate for all hours of the day on all days (24/7). Due to the 24/7 operations, this group is typically large in all RTOs and ISOs. Staffing requires adequate shift coverage (including depth to cover sick, vacation etc), supervision and training. The asterisks indicate the shift desks.

The Real Time Operations group will include the following desks:

- Shift Supervision
- Remedial Action Schemes (RAS) Coordination;
- Generation Dispatch (AGC);
- Balancing Energy Dispatch; and
- Transmission Dispatch (2 desks).

The dispatcher trainers (6) will be responsible for the qualification and continued training program. The trainers will oversee and track training progress. Another 6 is dispatcher training will document, manage and maintain all operating procedures. They will manage emergency response procedures.

The PNSC will remain the reliability coordinator (no Grid West headcount).

Role	Location	Count
Real-Time Manager	BPA Dittmer	1
Dispatcher Trainer	BPA Dittmer	10
Dispatcher Trainer	Back-up	2
Shift Supervisor	BPA Dittmer	6*
Floating Employee	BPA Dittmer	1
RAS Coordinator	BPA Dittmer	6*
Generation Dispatcher (AGC)	BPA Dittmer	6*
Balancing Energy Dispatcher	BPA Dittmer	6*
Transmission Dispatchers	Back-up	12*
Total		50

Organization Design Working Draft

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	87	51 in Grid Operations/Dispatch, 36 in Operations Support & Training
ERCOT		Part of 54 in Systems Operations? 2 in Dispatcher Training
NYISO	~86	82 total in Operations, 4 in Dispatcher Training based on ISO experience
PJM		Part of 148 in Systems Operations
GridFlorida	86	Total Control Center Ops 51 Day 1 + 35 Day 2

The headcount drivers for this group are:

- 24/7 operation with adequate depth and training
- Number of market changes
- Number of prices
- Voltage level and thresholds
- Level of automation

The opportunities for cost savings are:

- Reduced market complexity (no RMR)
- Controlled change and rollout
- Fewer procedures to document and change
- VAR taken into account by TO in balanced schedule

2.5 IT Operations

The Information Technology group within other ISOs and RTOs typically has the largest number of employees compared to other divisions. The ratio of IT personnel to total personnel is typically 30%. For example, NYISO has 142 IT resources out of 409 total resources; ERCOT 184 IT resources out of 530 total; and PJM has 169 resources out of 650 total resources.

2.5.1 Corporate Infrastructure and Systems

The Corporate Infrastructure and Systems department will provide general IT services including:

- Web services,
- Database administration,
- Windows administration,
- Network administration
- Enterprise Applications administration.

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- Cyber security,
- Systems and disaster recovery support,
- Help Desk support,
- Data services,
- Asset management,
- IT planning, and
- Technical architecture.

There will be a responsible entity for managing the cyber security program according to North American Electric Reliability Council (NERC) standards. Technical Architecture representatives will be responsible for designing architecture and providing problem anticipation and resolution. This group will carry out system integration and testing.

Role	Location	Count
Manager	Corporate Office	5
Specialist	Corporate Office	10
Analyst	Corporate Office	22
Analyst	BPA Dittmer	4
Analyst	Back-up	3
Total	Corporate Office	44

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	83	143 Total (less 11 MRTU project mgmt) 60 estimated app support
ERCOT	90	Technology Services, Data Management and Security
NYISO		Part of 148 total for IT (131 FTEs + 17 contractors)
PJM		Part of 169 total for IT
GridFlorida	23	Corporate IT Support 13 Day 1 + 10 Day 2

The headcount drivers for this group are:

- Number of employees requiring Help Desk support
- Corporate site (e.g. multiple sites, single primary site with one secondary site)
- Extent of automation and integration
- System complexity
- Assumed ratio of corporate IT to total remaining staff
- Number of applications and extent of customization
- Network support
- Security requirements

The opportunities for cost savings are:

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- Minimize web service requirements
- Minimize data archive volume
- Leverage established enterprise solutions
- Leverage existing BPA IT & security

2.5.2 Application Support

The Application Support department will work closely with the other functional group relying upon systems, such as the Market Settlements group. The Application Support group will support daily operations and maintenance; troubleshoot problems; work with others in IT to perform enhancements and upgrades; and coordinate implementation.

Application Support will include:

- **Energy Management System (EMS):** Operations systems
- **Market Systems:** OASIS/Market Information System, RCS Auction and database support
- **General Systems:** Settlement, Tariff Billing, Accounting systems

Role	Location	Count
Manager	Corporate Office	1
Manager	BPA Dittmer	2
Analyst	Corporate Office	9
Analyst	BPA Dittmer	14
Analyst	Back-up	5
Total	Corporate Office	31

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	60	60 estimated of 143 total IT
ERCOT		30 in Development and Architecture by application
NYISO		Part of 148 total for IT (131 FTEs + 17 contractors)
PJM		Part of 169 total for IT
GridFlorida	32	EMS IT Support 14 Day 1 + 18 Day 2

The headcount drivers for this group are:

- Complexity and number of applications

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- Complexity of the market
- Number of market changes
- Vendor support levels

The opportunities for cost savings are:

- Less complexity in the market
- Less frequent market changes
- Minimized customization
- Controlled change and rollout

2.6 System Planning

The groups within the System Planning division will likely be led by one manager. The System Planning division will conduct long term planning and feasibility studies. The group manager will provide guidance to the department on the development of comprehensive reliability and performance programs. The group will also track costs.

2.6.1 Interconnection Planning

The Interconnection Planning group will study interconnection topics with industry best practices and performance metrics. The group will support related regulatory matters.

Role	Location	Count
Manager	Corporate Office	1
Specialist	Corporate Office	2
Analyst	Corporate Office	2
Total	Corporate Office	5

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	16	16 total in Grid Planning
ERCOT		17 System Planning, 2 Resource Planning, 1 Director, 1 Administrative Assistant
NYISO	15-20	Approximate based on ISO knowledge
PJM		Part of 56 in Transmission Planning?
GridFlorida	49	In Planning and Engineering? 25 Day 1 + 24 Day 2
BPA	23	2 WECC base case; 1 BPA base case; 20 planning

The headcount drivers for this group are:

- Number of market customers

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- Extent of interconnection planning
- Level of planning
- Key role in Pacific Northwest

The opportunities for cost savings are:

- TOs maintaining their planning role

2.6.2 Expansion Planning

The Expansion Planning group will use simulation and optimization models to assist with planning effort.

Role	Location	Count
Specialist	Corporate Office	2
Analyst	Corporate Office	2
Total	Corporate Office	4

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	16	16 total in Grid Planning
ERCOT		17 System Planning, 2 Resource Planning, 1 Director, 1 Administrative Assistant
NYISO		
PJM		Part of 56 in Transmission Planning?
GridFlorida	49	In Planning and Engineering? 25 Day 1 + 24 Day 2

The headcount drivers for this group are:

- Number of customers
- Extent of expansion planning
- Current state

The opportunities for cost savings are:

- Leverage past work?

2.6.3 Transmission Studies

The Transmission Studies group will evaluation transmission requests submitted by Grid West participants. Transmission studies will be posted on OASIS.

Role	Location	Count
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Organization Design Working Draft

Specialist	Corporate Office	2
Analyst	Corporate Office	2
Total	Corporate Office	4

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	16	16 total in Grid Planning
ERCOT		17 System Planning, 2 Resource Planning, 1 Director, 1 Administrative Assistant
NYISO		
PJM		Part of 56 in Transmission Planning?
GridFlorida	49	In Planning and Engineering? 25 Day 1 + 24 Day 2

The headcount drivers for this group are:

- Number of customers seeking transmission studies
- Extent of transmission studies

The opportunities for cost savings are:

- [?]

2.6.4 AFC Management

Role	Location	Count
Specialist	Corporate Office	2
Analyst	Corporate Office	2
Total	Corporate Office	4

Comparable information on other ISOs and RTOs is shown in the following table.

ISO/RTO	Staff	Comparison
CAISO	16	16 total in Grid Planning
ERCOT		
NYISO		
PJM		
GridFlorida	49	In Planning and Engineering? 25 Day 1 + 24 Day 2

The headcount drivers for this group are:

- Number of customers
- Extent of AFC management

Organization Design Working Draft

The opportunities for cost savings are:

- [?]

3.0 Market Benchmarks

The basic features of Grid West will be leaner than other operating ISOs and RTOs that have a more robust market with greater market complexity. The following tables show benchmark information for other ISOs and RTOs for comparison purposes.

The following table shows the current total number of resources at operational ISOs and RTOs.

Table 3.1 Current Headcount at ISOs and RTOs

ISO/RTO	Total Resources	Reference
Grid West	Draft: 305	DRAFT Organization Design Estimate
GridFlorida	194 Day 1 / 354 Day 2	April 20, 2005 ICF Consulting Report
ISONE	421.5	2005 Budget
NYISO	430	2005 Budget (411 FTE + 19 contractors; includes 4 new in 2005)
ERCOT	530	2004 Fee Case & FY2004 Budget
MISO	548	2005 Budget (authorized personnel)
CAISO	587	FY2005 Budget Summary (9 incremental FTEs proposed → 596)
PJM	650	Proposed 2005 Budget (in Day 1 FERC Report)

It is important to note that these ISOs and RTOs rely on consultants and contractors in various capacities and to varying degrees.

The benchmark information can be difficult to compare due to different organization structures. The following table shows a comparison based on large divisions.

Table 3.2 Benchmark Comparison

Division	ERCOT FTEs	% of Total	NYISO FTEs	% of Total	CAISO	% of Total	Grid West	% of Total
Administration	63	12%	91	21%	141.5	24%	75	25%
IT	184	35%	148	34%	145	25%	51	17%
Grid Operations & Planning	132	25%	98	23%	180.5	31%	86	28%
Market Operations	151	28%	93	22%	120	20%	93	30%
Total	530	100%	430	100%	587	100%	305	100%

Organization Design Working Draft

Based on the FERC Staff Report on Cost Ranges for the Development and Operation of a Day One Regional Transmission Organization (Docket No. PL04-16-000) dated October 2004, the estimated staff for the Day 1 operation of ISOs and RTOs is shown in the table below. A Day 1 RTO provides the minimum functions for an independent, non-discriminatory transmission service. More complex functions outside of the Day 1 scope include: market-based congestion management, day-ahead energy market, same-day energy market, ancillary services market and capacity market. Grid West will have more services than the Day 1 Market.

Table 3.3 FERC Report Day 1 Staff

ISO/RTO	Day 1 Staff	Date and Comments
CAISO		Not part of study
MISO	187	12/31/02; 227 less MAPP FTE
NYISO		Not part of study
ERCOT	188	296 FY2002; 380 12/03
ISONE		Not part of study
GridFlorida		Not part of study
PJM	493	Based on 2004 Budget
SPP	140	2003, 109 Non-Market FTE, 31 Market FTE

4.0 Cost Drivers

The cost associated with these resources will be dependent upon:

- Number of employees
- Benefits per employee (loading rate)
- Equipment per employee
- Building resources and building related expenses required

5.0 Conclusion

The total number of resources by division is shown in the following table.

Table 5.1: Total Estimated Resources by Division

Division	Total Resources	% of Total
IT Operations	75	25%
Grid Operations	62	20%
Market Operations	62	20%
Corporate Administration	51	17%
Market Services and Development	38	12%
System Planning	17	6%

Organization Design Working Draft

Total	305	100%
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For the purposes of evaluating the feasibility of BPA's Dittmer operations center, the following table shows the total resources by proposed location. It is important to note that the proposed number to be housed at Dittmer includes real time operations (7/24). As a result, not all the resources will be on-site at one time, but a peak of approximately 45 to 50 personnel will be on site during regular work hours.

Table 5.2: Total Estimated Resources by Location

Location	Total Resources	% of Total	Desks
Corporate Office	179	58%	179
BPA Dittmer	90	30%	60
Back-Up Site	36	12%	21
Total	305	100%	259

The designation of analyst and specialist is a broad categorization. In reality, there will be more of a continuum of experience levels and salaries. It is estimated that the organization will have approximately a standard organizational pyramid structure, as shown in the following table.

Table 5.3: Organizational Structure

Title	Total Resources	% of Total
Executive	4	1%
Senior Director	3	1%
Manager	30	10%
Specialist	107	35%
Analyst	161	53%
Total	305	100%

6.0 Design Issues for Further Considerations

- Executive management and hierarchical structure
- Site selection, feasibility and build-out requirements

Organization Design Working Draft

7.0 References

Analytical Support for California ISO Grid Management Charge for 1999, Filed as Part of GMC Rate Filing in October 2000

California ISO FY2001 Budget Cost Allocation Matrix

California ISO Proposed FY2005 Operating and Maintenance Budget and Capital Budget and Proposed FY2005 Budget

2004 ERCOT Fee Case, Work Paper 25 Position Control Listing October 2003 and Work Paper 9: Staffing Summary by Division and Department

Estimate of GridFlorida Capital and Annual Operating Costs for Day 1 and Day 2 Operation, Prepared by ICF Consulting for GridFlorida Applicants and Stakeholders on April 20, 2005

Midwest ISO 2005 Budget Advisory Committee Presentation, December 8, 2004

2004 NYISO Budget Overview presentation to the Budget, Standards & Performance Subcommittee on September 26, 2003

NYISO 2005 Draft Budget presentation to the Budget, Standards & Performance Subcommittee on October 14, 2004

Staff Report on Cost Ranges for the Development and Operation of a Day One Regional Transmission Organization, Docket No. PL04-16-000, prepared by the Staff of the Federal Energy Regulatory Commission, October 2004